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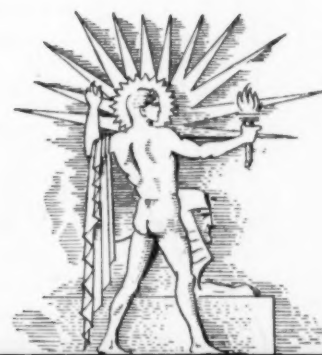
SCIENCE NEWS LETTER

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AUG 27 1940

DETROIT

THE WEEKLY SUMMARY OF CURRENT SCIENCE



August 17, 1940

Safe From Germs

See Page 102

A SCIENCE SERVICE PUBLICATION

Do You Know?

Experiments have shown that *whey* is one of the richest sources of lactoflavin, or vitamin B₂.

There are more than 100 *crops* in the industry that is ordinarily summed up as "agriculture."

"After babyhood, most children have the right kind of *food* only when the whole family is well fed," government nutritionists declare.

Located in the New Mexican desert, the world's largest *ice cave* has a 30 degree temperature and the floor is solid ice of unknown thickness.

About 15,000 trout were recently planted in glacial lakes in Montana by a flying game warden who *dumped* the fish from overhead out of a tank.

A Chinese physician of the sixth century A.D. concocted a "flying elixir" of gold, cinnabar, azurite, and sulfur in the belief that *drinking* it would cause a man to fly.

By testing fabric under ultraviolet light, cleaners say they can now settle arguments over *holes* blamed on chemicals used in cleaning—holes eaten by chemicals fluoresce.

There is no *scientific* reason for milking a cow from the right side, says a Cornell professor, and no practical reason unless it is that a few cows, used to being milked from the right, make trouble if the usual procedure is changed.

QUESTIONS DISCUSSED IN THIS ISSUE

Most articles which appear in SCIENCE NEWS LETTER are based on communications to Science Service, or on papers before meetings. Where published sources are used they are referred to in the article.

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A housefly may travel several *miles*.

A "bridge" less than 18 feet long is not a *bridge*, says a railway engineer—properly it is a culvert.

Epidemics of *boils* are unknown, says a physician.

A silkworm *startled* while spinning may jerk a knot in the cocoon thread.

SCIENCE NEWS LETTER

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THUNDER OVER TRYLON

This stroke of man-made lightning was photographed in the General Electric exhibit at the New York World's Fair, by Mildred Wellrich, of New York City. The six-foot model trylon, made of metal, carried 5,000,000 volts of lightning harmlessly into the ground, just as its 600-foot original captures and grounds the natural bolts from the clouds.

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FORESTRY

College Men Recruited To Fight Forest Fires

OREGON State, 100; Big Blaze, 0. Scores like that will be tried for by teams of college men now being formed at Oregon State College, under the direction of the U. S. Forest Service. The game is something much more strenuous than even big-time football, and it is played "for keeps"—it is fighting forest fires.

The teams are to consist of 25 men each, all picked for size, strength and endurance and trained for skill and teamwork in combating forest fire. Stationed at CCC camps in the timber country, they will "sleep with their boots on," ready to go into action day or night, at the first drop of a spark.

Science News Letter, August 17, 1940

PSYCHOLOGY

Pain Felt at Same Level Of Stimulus by All Persons

Neither Age, Sex, nor Emotional State Changed Threshold in Group of 150 Assorted Subjects

PAIN makes itself felt alike to all persons, regardless of age, sex or "state of mind." Even if you've been kept awake for 24 hours on end and are tired enough to howl, you are no more sensitive to pain than you were after a refreshing night's sleep.

These are among the indications of experiments reported by Drs. George A. Schumacher, Helen Godell, James D. Hardy and Harold G. Wolff, of the Russell Sage Institute of Pathology, New York Hospital and Cornell University Medical School (*Science*, Aug. 2).

The four researchers investigated the pain threshold, or point at which sensation is identifiable as pain, in 150 persons of both sexes, through a wide range in ages. They subjected them to the same uniform test, in all stages of freshness and fatigue, up to 24 hours without sleep; also in all kinds of emotional moods, from bright and cheerful to depressed and gloomy. Nothing made any difference; they all began to "hurt" at the same point.

The pain stimulus was one that could be accurately controlled and measured. It consisted in the heat-bearing beam from a thousand-watt lamp, focussed through an opening onto the blackened forehead of the subject. The experimenter "turned on the heat" for exactly three seconds. If the subject reported no pain, the current was switched off for a short interval, then tried again a little stronger, until pain was just beginning to be felt at the end of the three-second exposure.

All the persons volunteering for the experiment reported in much the same terms: there was a feeling of warmth, "rising" or "swelling" to a sharp stab of pain at the end of the three-second exposure period.

Before the experiments began, the 150 subjects were all asked about their sensitivity to pain. Some reported themselves extremely sensitive, others "average" or quite insensitive. Actually, they all reported pain at close to the same amount of heat absorption. Apparent individual differences in pain sensitivity

would therefore seem to be subjective rather than objective.

The point at which heat began to be felt as pain, in terms of the physical laboratory, was a trifle over two-tenths of a gram calorie per second per square centimeter.

Science News Letter, August 17, 1940

GENERAL SCIENCE

French Emigre Scientists Plan Journal in London

FRENCH scientists and scholars in England are planning the establishment and regular publication of a cultural review journal in the French language that will symbolize the freedom of the French spirit in science, literature and art despite the Nazi conquest of France itself. Leading British scholars and scientists are lending their support to the new project being organized by French emigre scholars and scientists in London.

A letter with influential British signatures will be sent shortly to heads of universities and other scientific and learned institutions in Great Britain and the United States asking for the moral support of leading personalities in both countries for this new cultural French review.

In the present struggle of democracy against fascism it is considered important here to maintain and present the results of French science, literature and art in the free environment that is possible in London even in face of the threat of invasion. The Royal Society of London, of which Prof. A. V. Hill is secretary, is playing an important part aiding the new movement.

Before France's capitulation plans were underway for French scientists to publish in French some of their research results through the columns of the leading British science journal, *Nature*. These plans may also be revived.

It is expected that the American and Canadian response to the new French review will be enthusiastic and cooperative.

Science News Letter, August 17, 1940



Harris and Ewing

TO STUDY VALUE OF INVENTIONS

First meeting of the new National Inventors Council, which will serve the nation by examining inventions for their possible usefulness in the present emergency.

INVENTIONS

National Inventors Council To Serve as Clearing House

TO ACT as a clearing house for America's inventive genius, the National Inventors Council has been created by the government to serve in the present emergency somewhat the same function that the Naval Consulting Board did during the first World War.

The new council of 12 has been organized by Secretary of Commerce Harry Hopkins with the cooperation of Commissioner of Patents Conway P. Coe. It will have offices in the Department of Commerce Building and will be closely related to the Patent Office but not a part of it. Dr. Charles F. Kettering of the General Motors Corporation is chairman.

At the first meeting of the council plans were made to give prompt consideration to any volunteer suggestions that are received. As the military and other government services need problems tackled, it is contemplated that the council will call such needs to the attention of inventors likely to achieve the desired results.

Much of the work of the new council necessarily will be secret.

In addition to Chairman Kettering, the members of the National Inventors Council are: Dr. George Baekeland, vice-president of Bakelite Corp.; Conway P. Coe, U. S. Commissioner of Patents; Dr. William D. Coolidge, director of General Electric Research Laboratories; Watson Davis, director of Science Service; Frederick M. Feiker, dean of George Wash-

ington University School of Engineering; Dr. Webster N. Jones, director of College of Engineering, Carnegie Institute of Technology; Lawrence Langner, patent lawyer, New York City; Dr. Thomas Midgley, vice president of Ethyl Gasoline Corp.; Dr. Fin Sparre, director of research, du Pont Corp.; Dr. Orville Wright, Dayton, Ohio; Fred M. Zeder, vice-president in charge of engineering of Chrysler Corp.

Science News Letter, August 17, 1940

MINING

War Spurs Canadian Hunt for Minerals

THE CANADIAN government is sending out 170 men in 37 geological, topographical survey and exploratory parties this summer to roam the Dominion in every mineral-producing province, the Northwest Territories and the Yukon.

In view of Canada's wartime mineral requirements, particular attention is being given to investigations in connection with such minerals as have direct bearing on the war effort. The work of the Geological and Topography Bureau of the Department of Mines and Resources is largely directed toward the extension of the gold mining industry which provides foreign credits now so essential, and toward an evaluation of the resources in petroleum, an increased domestic supply of which is necessary for

wartime needs and to limit dependence on foreign sources. Investigations will also be made of deposits of the so-called war minerals, such as chromium, manganese, molybdenum and tungsten, which are of particular importance in the production of arms and munitions.

While the geological survey and exploratory parties will be largely spread throughout Canada and the Far North, the topographical survey work will be devoted entirely to surveys in the foothills district of Alberta which is now of importance as a potential source of petroleum supplies.

Science News Letter, August 17, 1940

CHEMISTRY

Synthetics Recommended For Making War Materials

WAR MATERIALS can be made from synthetic resins or plastics produced through use of raw materials which abound within the continental limits of the United States, it is indicated by a survey reported in *Modern Plastics* (August).

Already used in telephones, radios, electrical devices, automobiles, spectacles, film, surgical instruments, airplanes, guns, gas masks, and other things useful in peace and war, more extensive use of plastics is suggested to relieve pressure on other materials.

The chief raw materials consumed in the plastics industry can be derived from a few natural substances such as air, water, coal, petroleum crudes, salt, sulfur, cellulose and limestone. All these raw materials are easily obtained.

Phenolic resin, the most familiar of the plastics, accounts for 29% of the 1939 production. This resin is made from two disinfectants, carbolic acid and formaldehyde. Cellulose acetate is next in production with 25.6%, followed by cellulose nitrate with 19.7%. Other resins are: Urea, 10.9%; vinyl, 6.7%; casein, 5.3%; acrylic, 2.1%; polystyrene, 0.3%.

Science News Letter, August 17, 1940

● RADIO

Jack Price, photographic columnist of *Editor and Publisher*, and author of "News Photography and News Pictures" will discuss Military Photography, as guest speaker on "Adventures in Science" with Watson Davis, director of Science Service, over the coast to coast network of the Columbia Broadcasting System, Thursday, Aug. 22, 4:00 p.m., EDST, 3:00 EST, 2:00 CST, 1:00 MST, 12:00 PST.

Listen in on your local station. Listen in each Thursday.

GENERAL SCIENCE

Great Roster of Scientists And Experts Now in Making

**Expected to Include as Many as Half Million Names;
Will List Useful Hobbies as Well as Regular Vocations**

A GIANT card directory of all of America's experts—scientists and professional people—is in the making in order that Uncle Sam may locate for defense, or whenever need arises, those with special skills.

"The National Roster of Scientific and Specialized Personnel," as this index is called, may include eventually as many as half a million names, or about one out of every 250 Americans.

Without any fanfare of publicity the project has been materialized through the joint efforts of the National Resources Planning Board and the Civil Service Commission.

Dr. Leonard Carmichael, psychologist and president of Tufts College, is director of the project, and James C. O'Brien of the Civil Service Commission is executive officer.

The new federal index of experts will be somewhat similar to the register compiled last year in England under the sponsorship of the Royal Society. The British experience is being drawn upon in formulating the methods of procedure and operation.

Existing Lists Used

Membership lists of specialized and technical societies will be used to reach the specialists of the nation with extensive questionnaires. These will not deal with their regular lines of work alone but with their hobbies as well. A biologist who designs special radio circuits as a hobby may prove to be more valuable to the nation as a communications engineer than in his own primary professional field.

The information gathered will be recorded on punch cards which can be sorted speedily by machines. In a few minutes it will then be possible to compile an accurate list of all experts in any field.

"The fundamental idea behind the new roster is conservation," Dr. Carmichael explained. "It is recognized by all that the services of experts may be crucial in preserving the welfare of the nation. A chemist whose work has been done in some highly specialized and rela-

tively obscure field may suddenly become the one man in the country able to devise a means of protection against some new chemical weapon. A specialist in an obscure dialect of a foreign language may possess a skill which will have far-reaching significance in an emergency. The conservation of specialized work now in progress is also important to the nation. It is most desirable not to disturb an important cooperating group of scientists in a certain laboratory if similarly trained experts not so engaged can be found elsewhere."

Other Bodies Cooperate

National non-governmental organizations cooperating in the early stages of the roster project include: National Research Council, American Council on Education, American Council of Learned Societies, and the Social Science Research Council. Engineers will also be included, but only the more specialized medical men will be included because of the extensive lists of physicians compiled by the American Medical Association.

To supplement and make effective the great files of index cards, it is planned to have committees of specialists widely acquainted with various fields to evaluate the names of individuals whose names are obtained by the automatic card sorting processes. These special committees will also be charged with protecting the present educational and research endeavors which are performing important public services.

"The aim of the National Roster is the development of a means for the efficient and rapid but appropriate use of the specialized brains of America in the service of the nation," Dr. Carmichael explained. "Once started and organized, the value of the Roster to many constructive activities of peace time, especially in connection with modern personnel and employment services, will become obvious.

"With the passing of the present emergency, this Roster should not be abandoned, but rather, maintained as a continuing and always up to date census of the specialized brains of America.

Even in a complete and continuing form, the development and maintenance of such a register will not be expensive in comparison with some of the other projects already undertaken for the preservation and effective use of our national resources. The procedures which will be based upon the use of the Roster are at once effective and truly democratic. The time has come when our nation must be efficient. The National Roster of Scientific and Specialized Personnel is certainly a necessary tool of an effective democracy."

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PUBLIC HEALTH

Chronic Disease Now Most Probable Cause of Death

ABOUT three out of every four children born now will die from chronic disease, while acute disease will take about one in six, according to the statistical department of the Metropolitan Life Insurance Company. This represents a considerable change from conditions at the beginning of the century. Every third child born then would have been killed by acute disease, while chronic disease would have been responsible for the deaths of about half the group.

Childhood ages have chiefly benefited by the cut in death rate from acute and infectious diseases, says the Company's *Statistical Bulletin* (July). "On the other hand," it continues, "most of the chronic diseases, which have their greatest incidence in midlife and in old age, have shown little or no improvement, and in some cases there have been actual increases in their mortality rates. Of the chronic diseases, tuberculosis is the only one of importance that has shown any marked improvement."

The data also bring out the fact that "external causes," which include deaths by suicide, homicide and accident, have greatly increased in importance since 1920, especially for males. In 1901 77 in a thousand males would have died in this way, in 1920 this had increased to 79, but in 1937 it stood at 101. The corresponding figures for females were 33, 38 and 56 in a thousand.

Other figures collected, comparing deaths during the first half of 1939 and of 1940, show that the depression years did not adversely affect the health of the nation. The death rate per thousand, for those insured in the Company's Industrial Department, was 8.98 in the first six months of 1939 and 8.14 in 1940.

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BACTERIOLOGY

New Safety For Babies

Kept Isolated From Each Other During First Few Days, Babies Cease Promiscuous Swapping of Disease Germs

See Front Cover

By DR. FRANK THONE

BABIES are each others' worst enemies. If a lot of them are gathered together in one place, as is the prevailing custom in these days of hospital births, it is no time at all before any germ disease that one of them brought has become the common affliction of the whole bunch. What doctors call "cross-infections" are the big headache of nursing and medical staffs of all maternity hospitals.

Efforts to control this danger take two main forms: kill all germs found at large, or keep the babies well isolated from each other, preventing even indirect contacts.

Most successful of the first systems, perhaps, is the device of laying down barrages of germ-killing ultraviolet radiation, from reflector-concealed mercury-vapor tubes on the ceiling. These ultraviolet ray barrages are laid down over doorways, across corridors and in other critical spots where doctors and nurses come and go. This system was worked out by Prof. W. F. Wells of the University of Pennsylvania.

Mechanical Isolation

More recently, the other system, that of keeping the babies mechanically isolated from even indirect contact with each other, has been brought to the highest pitch of perfection yet attained by the young head of the bacteriology department at the University of Notre Dame, Prof. James A. Reyniers. Both systems are being tried out side by side in *The Cradle*, a well-known home for babies in Evanston, Illinois.

Prof. Reyniers' baby cubicles, as he calls his tiny isolation rooms, were developed by following principles used in his earlier experiments, in which he produced and raised guinea pigs, chickens and other animals in a completely germ-free condition. In these researches, which brought him wide notice in the world of science, he brought the young animals into the world under absolutely aseptic conditions within sterile tank-like cages and kept them there permanently, giv-

ing them only sterile food, sterile water and germ-free air. Such "bacteriologically blank" animals are of great value for experimental purposes.

It is of course impracticable to have human babies born inside a germ-tight metal cage, and to keep them there until they grow up. Fortunately, however, it is not necessary to attempt anything so drastic. Babies, like the rest of us, can tolerate very considerable populations of microorganisms, so long as they are of harmless kinds. They can even put up with the presence of a few bad germs, if the latter are not constantly receiving reinforcements from elsewhere. Isolation can protect for all practical requirements, even if not 100 per cent complete.

Perfection in Drill

In all his work, Prof. Reyniers follows a slogan of his own, follows it so zealously as to make it almost a fetish: "Standardization through mechanization." He thinks his problem through, figures out the mechanical means necessary to achieve the end sought, lays out the scheme of operation, and then sees to it that the procedure is followed exactly, every time. He and his assistants drill themselves like a gun crew—yea, even like a Notre Dame backfield. So when they set themselves to "block that germ", said germ might as well quit trying.

First element in the safety-insuring cubicles devised by Dr. Reyniers is what amounts to a tiny private hospital room to that most important of all patrons, *The Baby*. It is walled in completely, with a sliding window in front. This window is opened only when the nurse is feeding or otherwise ministering to his wants.

Outside this compartment is another, also closed against the outside world, in which the nurse stands while she does her work. When she enters this, she first washes her hands, with a surgeon's thoroughness, at a washstand. Then she puts on a sterilized robe. Only after this does she open the window to attend to the baby.

Even though she always wears a gauze mask over her nose and mouth, to keep from coughing or sneezing any germs

into the air, she raises the window only part way, so that there is a pane of glass as well as the mask between her face and the baby.

Everything used by and for the baby is sterilized: food, milk, water, diapers. For "changing" purposes, the nurse wears a second sterilized robe, to be put on only on such occasions.

To make doubly sure that germs do not invade the cubicle by the aerial route, the air supply is kept flowing constantly from it toward the outside. This is accomplished quite simply—by maintaining the air pressure within the baby's cubicle at a slightly higher level than it is in the nurse's cubicle, and this, in turn, at a slightly higher level than in the hospital corridor. Thus, whenever door or window is opened, there is never a draft inward, bearing germs.

The air used is taken fresh from outdoors, where the germ content is always low. It is never re-circulated, but is constantly renewed from the outside world.

After he had all this figured out, and



WARRIOR IN ARMOR

Gowned, masked, rubber-gloved, this research worker in the Notre Dame University bacteriology laboratories minimizes chances of germ interchanges between himself and the guinea pigs in the cage.

before he undertook to set up his cubicles for actual use with babies, Prof. Reyniers "tried it out on the pig." He set up one of his units in the laboratory at Notre Dame, put some of his germless young guinea-pigs in the crib, and then tried in every way his ingenuity could suggest, to get germs enough past the barriers to make the little animals sick. Only when he had thus given his bacteriological fortifications a thorough-going practical test did he approve the construction of a row of cubicles for infant human occupancy.

Satisfactory Operation

The cubicles have now been in use at The Cradle long enough to give a good idea of how they work. Results are described as very good. Germ-caused illness has been greatly reduced among the babies, and if one of them does develop any trouble it keeps it to itself. No more tossing of illnesses all around the place, like a ball on a playground.

A second and incidental, but none the less highly valuable, effect of cubicle isolation is that the babies can't hear each other cry. Squalling in an infants' ward is as epidemic as a cold, and spreads even more rapidly. By making crying a strictly individual and private affair, the cubicle system contributes greatly to the comfort of the babies—not to mention the wear and tear spared the ears of the nursing staff. This greater quiet and comfort is reflected in the improved sleeping habits of the infants, as well as in the more rapid gain in weight.

Babies are not kept in the cubicles all the time, like little prisoners. They are permitted visits with their mothers. When a baby goes a-visiting, he is put into a special carrying case, equipped with an air filter, and so carried to his waiting mother. The only exclusiveness enforced is towards other babies, and that kind of neighboring has no social value during the first few days of a baby's life.

Babies raised in the Reyniers cubicles are not kept in them for very long periods. It is considered better, always, to get them out of the hospital atmosphere and into their own homes as soon as possible. At home, there is not the high concentration of germs that is practically universal in hospitals and similar institutions.

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California has discovered that it can produce most of the plants which yield essential oils for perfumes, drugs, and flavorings.



PRACTICAL ISOLATIONISTS

Nurses at The Cradle, Evanston, Ill., in Prof. Reyniers' germ-excluding cubicles for keeping babies safe. Even within these, the baby is separated from the nurse by still another glass barrier.

ETHNOLOGY—HERPETOLOGY

Snake-Handling Cultists Resemble Other Groups

SNAKE-handling religious cultists of Georgia are "all of a piece" with followers of other cults who go to unusual lengths to show their faith or their access to supernatural powers. The same thing, with or without snake-handling, has been seen in various cultures and various times, according to Dr. Winfred Overholser, superintendent of St. Elizabeths Hospital, Washington, D. C. The activities of the Georgia group would not be "news" in Haiti, Dr. Overholser pointed out. Such goings-on only surprise us when they appear in the midst of our own culture.

The development of these strange cults rests on the credulity that characterizes groups of people living at a low cultural level. Such people are ready to believe what a leader tells them because they lack the knowledge or means of learning whether or not he is right.

Copperhead snakes are less deadly than rattlesnakes, water moccasins and coral snakes. This may explain why followers of the cult have been able to handle copperheads in their church rites with apparently few fatalities.

The bite of the coral snake is very dangerous because the venom of this reptile attacks the nerve centers. The venom of rattlesnakes, moccasins and copperheads, on the other hand, destroys red blood cells and breaks down the walls of the blood vessels. Serious as this condition is, it takes a little longer period before it becomes fatal, giving a chance for the victim's recuperative powers and medical aid to overcome the effect of the snake venom.

Copperheads are very dangerous and there are records of deaths from the bite of this snake, but such deaths are not common. The reasons why the copperhead is less dangerous than the rattler are that the copperhead has shorter fangs, less virulent venom, and, because of its smaller size, injects a smaller amount of poison into a bite.

The habits of the copperhead may also have helped to protect those who handled it in religious rites. This snake is very quiet, seldom striking unless very definitely annoyed or attacked.

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ZOOLOGY

Animals From Africa For National Zoological Park

QUARANTINED at the National Zoological Park in Washington, D. C., are beasts and birds from an African Noah's Ark., recently landed, and with them is incarcerated one faithful keeper, Malcolm Davis, who recently returned from a penguin-catching expedition to Antarctica along with Admiral Byrd. The "sentence" will expire in a few days.

The caged creatures whose captivity Mr. Davis is sharing were brought back from Liberia by Dr. and Mrs. William M. Mann, who have been collecting new inhabitants for the Washington zoo during a several months' sojourn on the Firestone plantations in Liberia, with trips up country into the bush.

Among the creatures in the fifty-odd crates brought ashore at the Army Base at Norfolk, Va., when the Barbour Line steamer West Irmo docked, are two pigmy hippopotamuses, several chevrotain (miniature deer) and duiker (rabbit-sized antelopes), a number of monkey-eating eagles, and a considerable miscellany of small mammals, birds and reptiles.

The hooved animals must be kept in quarantine until danger that they might introduce hoof and mouth disease is past. All birds of the parrot family have to be kept under strict observation until they are proven free of parrot fever.

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CHEMISTRY

Germany Seeks "Ersatze" To Relieve Iodine Lack

WITH importation of iodine from Chile curtailed by the British blockade, drastic steps are being taken in Germany to conserve this element, and to use substitutes wherever possible, the Bureau of Foreign and Domestic Commerce of the U. S. Department of Commerce has been informed by the American Consulate General at Frankfurt-on-Main. A physician's prescription, which is non-renewable, is required to purchase tincture of iodine. Even then, unless the physician expressly stipulates, the tincture sold is more dilute than that formerly used.

To take its place a new antiseptic, in which bromine, produced in Germany, is an important constituent, has been introduced, and has been accepted as standard by the German army. However, io-

dine is still required for industrial uses, particularly in photography. Such consumption has been greatly increased by the demands of military photography.

Used fixing baths from photographic laboratories are being treated to reclaim the iodine. For some time it has been the practise to collect these baths to reclaim the silver they contain, so the recovery of iodine merely necessitates a few additional steps in the process. From 98% to 99.5% of the iodine can be salvaged, it is said. Other sources are the old swabs used in hospitals with the tincture, and kegs which have held iodine or its compounds.

Science News Letter, August 17, 1940

METEOROLOGY

Recent Gulf Storm Started At Sea North of Bahamas

THE DUCHESS of Windsor will have additional reason for not being too anxious to go to the Bahamas, if she takes the trouble to study the life history of the recent hurricane-like disturbance in the Gulf region. This storm was born of a peculiar atmospheric upset that started at sea somewhere north of the Bahamas, crossed Florida near the northern end of the peninsula, and first began to develop the wide whirl that marks a hurricane after it was well into the Gulf of Mexico.

In this behavior it was quite unlike "typical" hurricanes, according to C. L. Mitchell of the U. S. Weather Bureau. These severe storms are usually thought of as starting in the Caribbean and moving up through the West Indies, then either turning off into the Gulf of Mexico or working up the South Atlantic Coast. The recent "home made" storm was thus somewhat unorthodox. However, there have been others of equally freakish behavior, Mr. Mitchell added. One that struck Charleston, S. C., several years ago actually started near Nantucket and "ran backward" down the coast.

The Bahamas are great hurricane country, Mr. Mitchell continued. They have a history of more hurricane visitations than peninsular Florida. This is because the "real" hurricanes, of Caribbean origin, are more likely to make a northward turn while still some distance at sea than they are to sweep on and strike the mainland. The low-lying British-held islands offer no particular obstacles to these most violent of all gales, and they have been repeatedly swept by severe hurricanes.

Science News Letter, August 17, 1940

IN SCIENCE

ASTRONOMY

Exploding Star Found In Distant Galaxy

DISCOVERY of a new object that is probably a supernova, a vast stellar explosion, has been made by Dr. Josef J. Johnson, of the California Institute of Technology, with the 18-inch Schmidt telescope on Mt. Palomar.

It occurred in a distant galaxy of stars, near the bowl of the Great Dipper in the northern sky. This is so faint that it is known only by its catalog number, NGC 4545, and it is so distant that its light takes millions of years to reach us, speeding 11,000,000 miles a minute. Photographs taken at the end of July showed the object to be of the fifteenth magnitude, much too faint to be seen without a powerful telescope. A plate taken about two weeks earlier showed no trace of the explosion, though it would have been recorded had it been as bright as magnitude 17.5.

Science News Letter, August 17, 1940

PALEONTOLOGY

Biggest Dinosaur Bones Sought in Texas Mountains

DINOSAUR bones bigger than any hitherto discovered will be dug up by an expedition from the American Museum of Natural History which recently went into the Big Bend country in Texas, under the leadership of Dr. Barnum Brown.

First bones discovered, which were turned up last summer by Dr. Erich Schlaikjer, indicate that the great reptiles were very much larger than the brontosaurus, which ranged up to nearly 70 feet in length and were 15 feet high at the shoulders. Footprints of dinosaurs in the region where the bones occur are as much as 4½ feet in length and more than a yard wide; they are the biggest footprints ever found.

The expedition will be in the field until Oct. 1. Unusual difficulties are anticipated because of the rough and extremely arid nature of the country. Water may have to be hauled for many miles.

Science News Letter, August 17, 1940

THE FIELDS

MEDICINE

Sulfanilamide Adds Two To List of Conquests

CONQUEST of two more diseases by sulfanilamide is reported to the American Medical Association (*Journal*, Aug. 10).

An acute form of meningitis, known as recurrent lymphocytic choriomeningitis, was successfully treated in a case reported by Dr. Harry Leichenger, Albert Milzer and Dr. Herbert Lack of Chicago. Four recurrences at intervals of about a month were brought under control successfully with sulfanilamide. The virus of the disease was also isolated.

A severe infection of the eye of seven years' duration, caused by the virus of venereal lymphogranuloma, was cleared up by sulfanilamide treatment administered by Dr. William Curth, Dr. Helen Ollendorff Curth, and Dr. Murray Sanders of New York. Vision of the eye had already been destroyed several years before and was not restored.

Science News Letter, August 17, 1940

PHYSICS

Cosmic Rays Studied on Colorado Mountain Top

WORKING for two months at a high altitude laboratory on Mt. Evans, Colorado, a group of University of Chicago physicists expect to learn more concerning three important problems of cosmic ray study. The group is headed by Dr. Bruno Rossi, formerly of the University of Padua, Italy, and more recently research associate of the University of Chicago, whose appointment to the Department of Physics of Cornell University was recently announced.

One of the problems is the life span of the mesotrons, which are rays produced when a cosmic ray from outer space strikes an atom in the atmosphere. In these measurements, Dr. Rossi hopes to substantiate Dr. Albert Einstein's hypothesis that time is slowed for a fast-moving object. If this is so, the mesotron of high energy, which reaches sea level, would go through its life cycle more slowly than one of lower energy. The

latter can only be observed from points of great altitude. Further study of cosmic ray showers, which occur about once an hour, when the rays spray out over an area of as much as a fourth of a mile in diameter, is also planned.

The Mt. Evans laboratory, 14,259 feet above sea level, was established jointly by the University of Denver, Massachusetts Institute of Technology and the University of Chicago.

Science News Letter, August 17, 1940

PUBLIC HEALTH

Puerto Rican Influenza Now Believed Subsiding

A WIDESPREAD but not very deadly influenza outbreak is subsiding in Puerto Rico. Health officials in continental United States are anxiously awaiting further developments and they are apprehensive that the disease will spread to the mainland. While no quarantine regulations are known to be in effect in Puerto Rico, it is understood that precautions are being taken to prevent the spread of the outbreak to other localities.

The appearance of influenza in Puerto Rico comes at an unusual time. Past major epidemics have usually begun in the fall, the great one of 1918 having started in September. This one in our key Caribbean island got under way about the middle of June.

Health experts specializing in influenza were dispatched to Puerto Rico early in the epidemic by both the U. S. Public Health and Rockefeller Foundation's International Health Division. Dr. John W. Oliphant is the federal expert and Dr. Edwin H. Lennette is the Rockefeller representative. Both of these investigators are charged with identifying the type of influenza virus causing the trouble. In fighting the disease it is important to know whether the kind of 'flu is different from what it has been in past years.

A little more hope exists that some defensive methods may be perfected against the 'flu if it attacks this fall. Dr. Thomas Francis, Jr., long a Rockefeller researcher upon the disease, has developed a vaccine against influenza that may be called upon if the epidemic spreads to the United States. This is relatively easily made by tissue culture of the virus. Recent research by Dr. Francis showed the possibility of vaccinating against influenza by treating the nose.

Science News Letter, August 17, 1940

MEDICINE

Many Spinal Fractures In Shock Treatments

VIOLENT convulsive shocks that often restore to sanity the "living dead" afflicted by the dementia praecox form of mental illness crack the vertebrae of about one out of five of the patients so treated.

This was shown in an X-ray study of patients who received both insulin and metrazol shock treatments (*Journal, American Medical Association*, Aug. 10). Of 34 patients who received only insulin shock therapy, 20.5% revealed compression fractures of the vertebrae, with the incidence higher in male than in female patients. Of 12 patients who received both insulin and metrazol, 25% showed fractures. An attempt is being made to reduce the spine damage by holding the patients so that there will not be sudden bending of the back during the convulsions.

The medical team that did the research consisted of Dr. Phillip Polatin, Dr. Murray M. Friedman, Dr. Meyer M. Harris and Dr. William A. Horwitz, all of New York.

Science News Letter, August 17, 1940

ANTHROPOLOGY

Famous Pipe and Pouch Acquired by Smithsonian

SITTING BULL was like Old King Cole in one respect at least: he loved his pipe. The tobacco pouch and pipe of the famous and feared Indian leader of the last century have just been acquired by the Smithsonian Institution.

The pouch is an especially formidable affair, 17 inches deep. It is decorated, of course, with beadwork. The pipe is of red clay, with a long, rectangular wooden stem. The bowl is slightly cracked.

These relics were presented by the noted old redskin to the late Maj. Gen. James W. McArthur, who was a lieutenant in the Seventh Infantry when Sitting Bull surrendered. They were presented to the Smithsonian Institution by Mrs. McArthur.

The only other Sitting Bull relic known to be authentic is a sawed-off flintlock, which he gave up at his surrender. The dozen or so pairs of moccasins supposed to have been worn by him are declared to be of dubious origin—"among the most common pseudohistorical relics offered for sale."

Science News Letter, August 17, 1940

GENETICS

Individual Sneeze Pattern Shown To be Hereditary Trait

Three Generations, Mother, Daughter and Granddaughter, Always Sneezed Twice; Baby Began at Age of Three Weeks

YOUR WAY of sneezing, if you do it in some peculiar individual fashion, may be inherited, it appears from a report by Dr. Milton H. Erickson, director of psychiatric research and training at Eloise, Mich., State Hospital (*Journal of Genetic Psychology*, June).

Dr. Erickson reports finding double sneezers in three generations of the same family: mother, daughter and granddaughter.

A double sneezer is a person who always expects and usually experiences a second sneeze in rapid succession to the first, usually within one to two seconds, rarely longer. With the hay fever season in full swing, you may be able to observe some double sneezers yourself.

In the group Dr. Erickson reports, the double sneeze pattern was first observed in the young woman of the middle generation. Her relatives and friends thought

it was an acquired mannerism, possibly the result of having as a child copied someone or done it as a trick until it became an ingrained habit that persisted after the trick or the imitation was forgotten.

The young woman herself, however, "regarded it as an innate, rather than as an acquired pattern of behavior over which she had no control, constituting nothing more than an amusing physiological peculiarity. She offered the explanation that it might be similar in character to the frequently encountered sneeze reflex to bright light or temperature changes."

When, however, this young woman's three-weeks-old baby started double sneezing, even making faces after the first sneeze as if expecting another, just as the mother did, Dr. Erickson began to wonder whether the pattern was not inherited. It was not possible for the tiny baby to be imitating her mother, much less double sneeze as a trick.

The baby's mother had thought she was the only one in her family who double sneezed, but after her baby started doing it, she discovered that her own mother, the baby's grandmother, had the identical double sneezing pattern.

This might all be coincidence, rather than inheritance, Dr. Erickson says. In favor of the inheritance idea he refers to the report of two New York scientists, Dr. C. Landis and Dr. W. Hunt, that "complicated bodily responses exist and are exhibited in a pattern-like fashion"—among the responses being sneezing and coughing, and that the general pat-

tern of these responses tends to remain constant regardless of age, sex and race.

"To this may be added," Dr. Landis concludes, "that variations in the pattern may be inherited."

Science News Letter, August 17, 1940

BACTERIOLOGY

Power to Kill Bacteria Discovered in Molds

POWER of certain kinds of molds to kill bacteria with a substance they secrete is described by Dr. Edwin C. White of the Johns Hopkins Hospital, (*Science*, Aug. 9). Although the nature of the substance is still unknown, Dr. White has developed a means for collecting it, so that analysis should eventually become possible.

The molds in which this bactericidal property were discovered all belong to the common genus *Aspergillus*, one of the frequent causes of spoilage in fruit. Various species and strains of this fungus genus differ widely in their production of the germ-killing material.

Since molds are related to bacteria, though somewhat remotely, the recent discovery of the power of soil bacteria to kill other bacteria, discovered for one group by Dr. René J. Dubos of the Rockefeller Institute for Medical Research, and for another by Prof. Selman Waksman and his collaborators at Rutgers University, is considered of interest in connection with the work of Dr. White.

Science News Letter, August 17, 1940

BOTANY

Hydrocyanic Acid Found In Several Plant Species

DEADLY hydrocyanic acid, in concentrations sufficient to be dangerous to livestock, has been found in several species of plants by a three-man research team in the U. S. Department of Agriculture.

The plants include the wild California almond, two western species of wild flax, a southwestern star thistle, the eastern manna grass, and a widely distributed marsh plant known as arrow grass.

The investigators were Drs. E. A. Moran, R. R. Bries, and J. F. Couch of the Bureau of Animal Industry.

Science News Letter, August 17, 1940

Earliest physician honored on a postage stamp is the Egyptian Imhotep of about 2980 B.C., figured on an Egyptian stamp of 1928.

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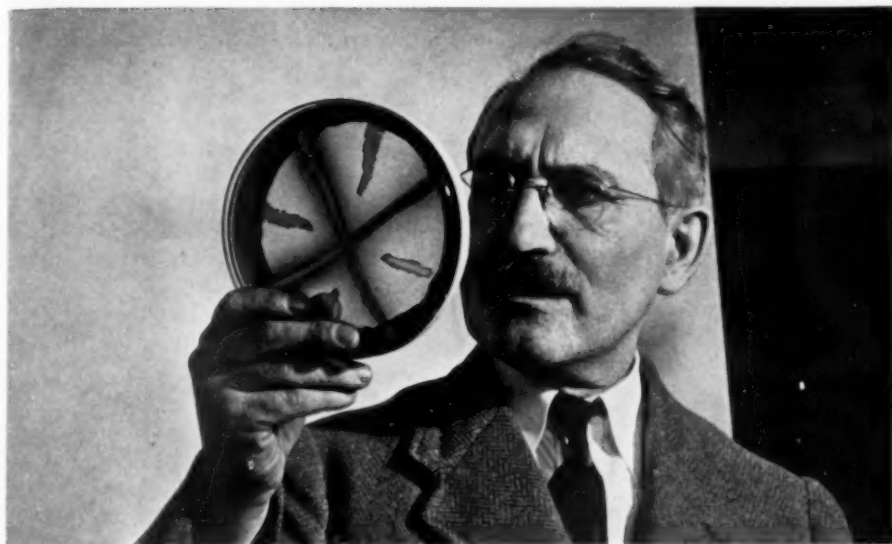
● Earth Trembles

Information collected by Science Service from seismological observatories resulted in the location by the U. S. Coast and Geodetic Survey and the Jesuit Seismological Association of the following preliminary epicenter:

Thursday, August 1, 10:08.4 a.m., EST

Northern part of the Sea of Japan, off Hokkaido. Latitude 44.5 degrees north. Longitude 140 degrees east. A strong shock.

For stations cooperating with Science Service, the Coast and Geodetic Survey, and the Jesuit Seismological Association in reporting earthquakes recorded on their seismographs, see *SNL*, Feb. 24.



GERM AGAINST GERM

Key to an important advance in the fight against disease appears in the round glass dish held by Dr. Selman A. Waksman, of the New Jersey Agricultural Experiment Station. Dr. Waksman and his associate, Dr. H. Boyd Woodruff, have discovered, in fresh field and garden soil, germs which destroy disease-producing germs of the gram-negative group, which includes typhoid fever, dysentery and cholera organisms. The cross in the middle of the glass dish or plate is made by disease-producing germs. Originally there was another cross on the plate made by disease-producing germs. Only the outer ends of this cross now show, because the antagonistic soil germs consumed the disease germs originally present at the center of the cross.

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known to be susceptible to dandruff.

The germ which has long been suspected of playing a part in causing dandruff, because it is found on dandruffy scalps, is a fungus named *Pityrosporum ovale*. Pitiful may describe the condition of scalps on which *Pityrosporum* is found, but the fungus gets its name from a Greek word meaning "bran." It also travels under the alias of "bottle bacillus," which again may be somewhat misleading to the layman. The alias is merely descriptive of the shape of the fungus, and has nothing to do with any bibulous proclivities on the part of either the fungus or its victim.

The drinking habits of the "bottle bacillus" are unrecorded, but it is known to be choosy about its food. This is what led Dr. Emmons to his investigations. Not until he had found the fatty diet that the fungus would thrive on did he turn to the question of its relation to dandruff.

With due scientific caution he still says that more proof is needed before one can be sure that this fungus is not the cause of dandruff, although the tests and the fact that it is found on the majority of non-dandruffy scalps seems to clear it.

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MEDICINE

"Bottle Bacillus" Remains Unconvicted as Dandruff Cause

THE GREAT mystery of the cause of human dandruff is still unsolved, despite the willingness of a human guinea pig, a United States Public Health Service scientist, to allow suspected germs to be rubbed on his scalp.

With a Scotch verdict of "not proven," the indicted fungus, *Pityrosporum ovale*, is relieved of some of its suspicion. The closest scientists can now come to determining the cause of the widespread human scalp affliction is that it is due "to a somewhat abnormal physiological condition."

The tests were made by Dr. C. W. Emmons, U. S. Public Health Service. The "guinea pig" was a staff member of the National Institute of Health, a man who prefers anonymity to the glory attaching to medical experimentation.

He took a chance on getting worse dandruff than he already had by rubbing the suspected germs into his thoroughly cleansed scalp and shoulders. And he did this not just once, but many times.

No dandruff scales appeared on his shoulders. Dandruff did not appear any sooner on the parts of his scalp where the germs had been rubbed than on other parts that had been cleansed and left alone as control areas.

The reason for using a dandruff victim for the tests was that the suspected germ is almost universally present on the human scalp, with or without dandruff. The tests had to be made on someone

POPULATION

Farm Population Grows, But on Poorest Land

FARM population in this country is still increasing, estimates of the U. S. Department of Agriculture indicate. As of Jan. 1, 1940, the American farm population was placed at 32,245,000, which is an increase of 186,000 over 1939.

The increase, however, has occurred mainly in areas not well adapted to commercial farming. In the richer, commercial-farming regions there was enough migration away from the farm during the past ten years to have brought about a reduction in farm population.

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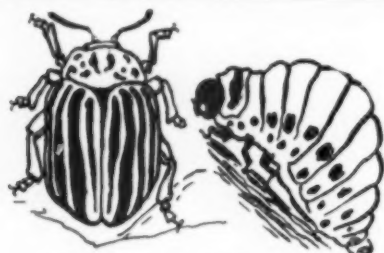
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Nomenclatural Inequities

ISN'T IT odd, how particular countries and regions get the credit for good things, and the blame for ill, that they never provided!

Quite familiar, of course, are the facts that Irish potatoes did not originate in Ireland, and that turkeys are not Turkish. Neither did Guinea pigs come from Guinea, which is in Africa. They came from South America. Similarly, English walnuts started their career not in England but in Persia. Panama hats are not straw hats from Panama; they come from Ecuador and are made of split palm leaves.

Perhaps, however, geographical misnomers are most frequent on the debit side of the ledger. We are always ready to blame the wicked foreigner for our misfortunes — never mind if it happens to be the wrong foreigner.

The Dutch elm disease, that threatens all the elms in the eastern United States, emphatically did not originate in the Netherlands. It was merely first observed there, shortly after the first World War. It did not even come to this country from the Netherlands, but in a shipment of elm veneer logs, probably from France. The disease itself may have come from Asia; nobody knows for sure.

Colorado bears, probably forever, the injustice of name-responsibility for the striped potato beetle. Actually, the pest has its home in Mexico, feeding on wild relatives of the potato. When large-scale potato cultivation was begun in Colorado, 50 or 60 years ago, this Mexican beetle just took advantage of the new source of easy and abundant food, and then spread eastward from its adopted state.

The Mormon cricket is native in the West where the Mormons settled. But surely these pioneers are treated unjustly when the insect that several times menaced them with dire famine is given the

folk-name of their church. It somehow does not seem right that victims of a pest should be made its sponsors.

How Spanish influenza came to be named is hard to guess. Certainly the disease did not originate in Spain. It raged there during the first World War, but it was just as bad, and maybe worse, in a dozen other countries.

Similarly, the Germans, whatever their other sins, did not invent German measles. Incidentally, it was just about

the nadir of pseudo-patriotic silliness when an effort was made, 22 years ago, to rename this disease "Liberty measles!"

There may be some trace of partial justice in the name of the Norway rat. This brazen-mannered pest is not native to Norway, to be sure, but it is not improbable that it got to Europe from its original home (wherever that may be) in the world-ranging ships of the Vikings' descendants.

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ASTRONOMY

War Prevents Celebration Of Copernicus Anniversary

First Account of Heliocentric Theory Published In 1540; Another Celebration Possible in 1943

WERE it not for the war, scientists in Germany, Poland and other European countries might this year be celebrating an important anniversary.

Just four hundred years ago first public announcement was made of the theory propounded by Nicholas Copernicus—that the earth revolves about the sun.

During the summer of 1540 a 26-year-old scholar from the University of Wittenberg, Georg Joachim Rheticus, as he called himself, was in the middle of an extended visit to Copernicus, canon of the Roman Catholic cathedral at Frauenberg, in East Prussia.

At that time it was generally believed the earth was fixed, that the sun and the planets revolved about it as a center. While Aristarchus, a Greek who lived several centuries before Christ, had made the suggestion that the earth, and the other planets, circled the sun, this idea had been rejected. But the studies of Copernicus led him to believe this would give a much better explanation of the motions he observed in the sky. So radical was this theory that he hesitated for a long time in announcing it, although several copies of a hand-written account, prepared perhaps as early as 1512, had been circulated among astronomers.

In order to learn more about these ideas, Rheticus decided to go to headquarters, so in 1539 he was received cordially by Copernicus. As he promised, he sent his old Nuremberg teacher, John Schoener, an account of the new ideas. This was published at Danzig in 1540, and was the first announcement of the

Copernican theory. Today it is one of the rarest of scientific first editions.

Because of the favorable response accorded to the "Narratio Prima," or "First Account," as this book is called, Copernicus finally decided to publish his own book. The manuscript was entrusted to Rheticus, who ended his visit in 1541, and after some delays, it was published in Nuremberg in 1543, entitled "De Revolutionibus Orbium Coelestium," or "On the Revolutions of the Celestial Orbs." By this time its author, 70 years of age, was ill, and one of the first copies was placed in his hands the day he died. In this book was presented a carefully worked-out theory, and from it came, eventually, the complete acceptance of the fact that the earth moves.

Despite its great importance, Copernicus' book has never been published in an English translation, though one of the "First Account," and also of the "Commentariolus," the manuscript account, has been made by Edward Rosen, and issued recently by the Columbia University Press. In the preface, Mr. Rosen announces his plan to translate "De Revolutionibus" by 1943, the fourth centenary of its original appearance. Perhaps, by that time, a more peaceful world will be able to have a fitting celebration of the anniversary of this great event in scientific history.

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Yellow traps attract about 50% more Japanese beetles than green and white traps, scientists have discovered.

AVIATION

Design Simplification Urged To Speed Aircraft Production

British Writers Place Blame for Delays on Red Tape And Meticulous Requirements on Non-Essential Points

SIMPLIFIED standards of construction and design for airplane parts where the highest quality of work does not contribute to reliability or strength is urged in the British magazine *The Aeroplane* (July 12).

"When we have weathered the storm which the next few months hold in store for us, we shall really begin to profit by the supplies from the United States," the writer declares. Assuming that enemy onslaughts during the summer and autumn can be withstood, and that pressure on German communications can be maintained throughout the winter, "we must prepare for a terrific offensive against Germany early in the spring of 1941," he urges.

Then, it is said, American-made airplanes and supplies will be invaluable, but "only if some of the red tape and restrictions which are hampering production for us in that country are thrown overboard." However, it is added, this delay "occurs, not in America, but in government departments in this country."

"The squadrons want aeroplanes," the writer states. "They want good aeroplanes. But they do not care two straws whether the seat belts they do up are of an American pattern or of the standard British type. They do not care whether the compasses with which they navigate are of an American design, or whether they were laid out in Timbuc-

too for that matter, so long as they do their job.

"Yet those are instances of the way in which deliveries are being delayed. New chairs are having to be made to take the British type seat-belts in one type of American aeroplane on order; and production of the whole job is being held back in consequence."

Delay in British construction due to bureaucracy is attacked in another magazine, *Flight* (July 11). As an example of "blue tape," this article tells of a manufacturer who was making apparatus for dropping supplies by parachute. They were urgently needed in France at the end of May, but nearly a month later none of the droppers had been accepted, and by that time the need for them in France had passed. Though the Air Ministry had given permission to simplify construction in order to achieve speed, the inspectors, from another department, had not been officially informed, and so would not pass the devices.

Though urging the highest standards of inspection "of all materials used in those parts of the aeroplane failure of which would involve the safety of the machine or detract from its effectiveness as a weapon of war," the magazine advocates that "such standards should not be adhered to for non-stressed parts and such components as do not affect the functional fighting ability of the aeroplane."

Science News Letter, August 17, 1940

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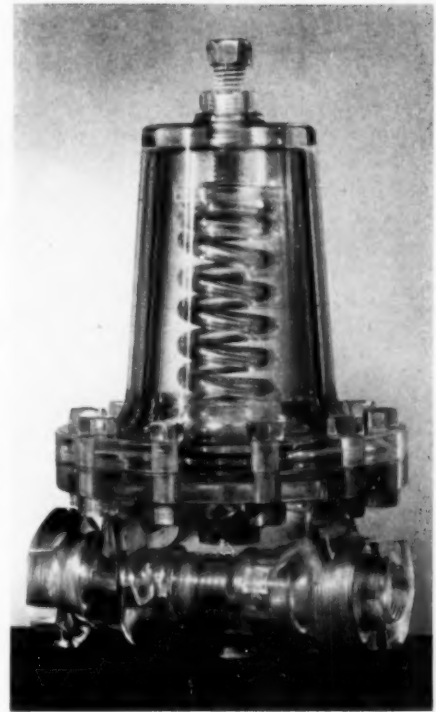
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ENTOMOLOGY

Mexican Ally Found To Fight Invader

MEXICO has come to the aid of the United States, against an invader that came into this country via the southern republic. The invader is the Mexican bean beetle, now a serious crop pest in many eastern and southeastern states. The aid consists in a useful small fly, a natural enemy of the beetle, obtained over a wide range of territory in central Mexico.



TRANSPARENT VALVE

World Fairs have recently been featuring "transparent men" and "transparent women", who show remarkably little reticence in disclosing the most intimate details of their inner workings. Students of biology learn from these transparent models; and following their example, engineers have taken to making working models of valves and other mechanisms in some of the newer plastics. This model of a reducing valve was made in Plexiglas by Dave Swedlow of Hollywood, Calif.

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When the Mexican bean beetle first found its way into this country, back in the time of the first World War, it failed to bring with it any of its natural enemies, which as a rule help to keep insect pests in check, in their native lands. Few of the native American predacious insects attack the beetle, so that it has had a pretty easy time of it while it got in its nefarious work.

Now, two U. S. Department of Agriculture entomologists, B. J. Landis and N. F. Howard, announce that encouraging results have been obtained with the fly, known to science as *Paradexodes epilachnae*. They have been rearing the flies at Columbus, Ohio, for more than ten years, and have recently begun releasing them to attack the beetles. Some 82,000 flies have been turned loose, in 19 states.

Science News Letter, August 17, 1940

Denmark, cut off from British coal, is producing home supplies of peat and brown coal for next winter's fuel.

INVENTIONS

Two-Purpose Machine Gun Mount Is Recent Patent

Other Notable New Inventions Include Novel Type of Moving X-Ray Target and Midget Air-Cooling System

QUICK change from firing on enemy troops on the ground to attacking airplanes aloft can be effected with a new machine gun mount for which U. S. patent No. 2,210,538 has just been granted George Ironside, of Hartford, Conn.

Since the gunners must crouch near the ground while in combat with other soldiers, in order to make themselves as poor a target as possible, the trunnions on which the gun is supported must be kept low. Then it is fired in a horizontal position. But when aimed at an overhead target, the trunnions must be considerably higher, to permit the muzzle to be elevated and the breech correspondingly depressed.

Mr. Ironside's mount, rights of which have been assigned to Colt's Patent Fire Arms Manufacturing Company, has a hinged cradle, mounted on the usual tripod. The gun is supported on the cradle, which is horizontal when used for ground firing.

For anti-aircraft work, the gun is removed from the cradle, which is then swung to a vertical position and locked. At its upper end is another pair of trunnions; the gun is remounted on these and is then ready to fire at aircraft.

Also among recent inventions is one for a new X-ray tube. This, No. 2,209,963, was granted to Jesse W. M. Du Mond, who assigned it to the California Institute of Technology, Pasadena, Calif.

X-rays are generated when high voltage electrons, produced in a vacuum tube, are shot at a mass of metal called a target. Since the target is heated in the process, and it could actually be melted, a limit is set to the amount of power and the length of time that the tube may be operated. Many methods have been used for cooling the target. One is to have it moving, so that the electrons are all the time hitting different parts and it can never rise to an excessively high temperature. Usually, such a moving target is simply a spinning disk.

In Dr. Du Mond's tube, the target has various forms, the first being that of a cylinder open at both ends, shaped like an old-fashioned napkin ring. This is

turned around its axis by means of a gearing from a motor. The electrons are aimed at the inner surface of the cylinder. They are not reflected, as light would be, but instead a beam of X-rays is produced. With this arrangement, Dr. Du Mond claims many points of superiority over other moving target X-ray tubes.

Several modifications of the idea are described in the patent specifications. In one, the electrons are not aimed directly at the target, but are bent towards it by a magnetic field. With the tube, the inventor says, operation can be continued with very high power over extended periods, without detriment. With such high powers, he states, short exposures may be made when taking X-ray photographs, thus stopping any movement of the subject. He also says that it will make possible sharper radiographs.

Lester S. Keilholtz, of Highland Park, Mich., received patent No. 2,210,458 for an individual air conditioner. One of its objects, he explains, is to provide "a small, inexpensive and economical air conditioning unit which may be adapted to condition the air within a selected and changeable localized space, said space

being only a portion of the entire volume of an enclosure."

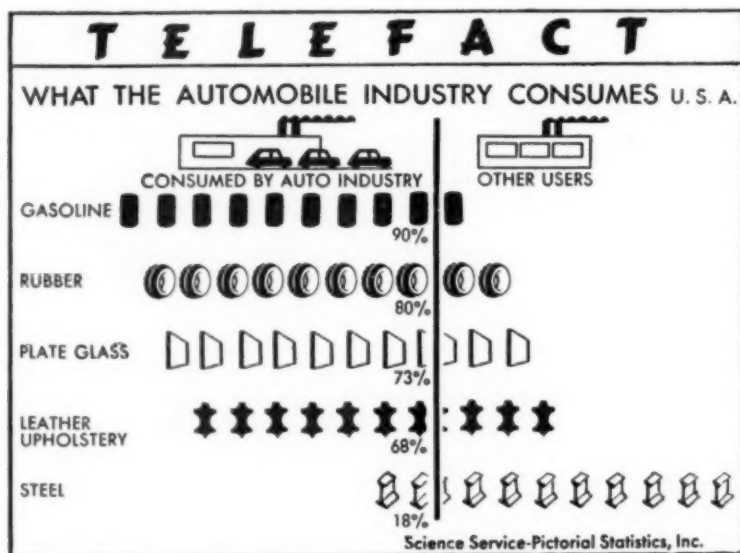
In one form, the invention is really a shower-bath of cool air. The cooling unit is contained in a cabinet on the floor, and the conditioned air is carried in a pipe and sprayed out above the user, who may be seated in a chair. Cool air being heavier than warm, falls around him, forming "a conical tent-like screen of conditioned air," as the inventor states. Inside the spray nozzle from which the cool air emerges is an intake. This sucks the air back and circulates it again for cooling. Other forms of the device use screened enclosures to keep the cool air confined.

To Gilles Fiolst and Jan Hendrik de Boer, of Eindhoven, the Netherlands, went patent No. 2,209,971, for a method of making a sound record on film of a thin metallic layer. Sound movie films have the record of the sound along the side, and this is made of small particles of silver, like those forming the picture itself. With highly perfected reproducing methods, the grain of the film introduces noise, and this invention avoids that. By a chemical process, the sound track is converted into a thin film of metal.

One plant patent, number 415, was granted during the week to John H. Kluis, of Boskoop, the Netherlands. This was for a dwarf hydrangea, and was assigned to Joseph S. Merritt, of Dundalk, Md.

Science News Letter, August 17, 1940

The Spanish conqueror Cortes was the first European to see *rubber* in use—he watched Aztec Indians playing with rubber balls.



Science News Letter, August 17, 1940

•First Glances at New Books

Additional Reviews
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CHILD STUDY

THE FIRST FIVE YEARS OF LIFE, A Guide to the Study of the Preschool Child—Arnold Gesell and others—*Harper & Brothers*, 393 p., illus., \$3.50. Psychologists, physicians, teachers and parents will all welcome this interesting, appealingly illustrated book which the author says is "a psychological outline of normal development from birth to the sixth year, including a system of developmental diagnosis." Study of the book should certainly give a much greater understanding of the preschool child.

Science News Letter, August 17, 1940

EDUCATION

EDUCATION OF THE HANDICAPPED, Vol. II, Problems—Merle E. Frampton and Hugh Grant Rowell, eds.—*World Book Co.*, 440 p., \$2.80. Like its predecessor, this should be a useful book to those who have to do with the care of the handicapped and should result in more and better help for the handicapped themselves.

Science News Letter, August 17, 1940

MEDICINE

THE UNSEEN PLAGUE, CHRONIC DISEASE—Ernst P. Boas—*Augustin*, 121 p., \$2. The author reviews the extent of this problem and its malign effect on all phases of living as a basis for "planning and action by government, community and physician."

Science News Letter, August 17, 1940

MEDICINE

PNEUMOCONIOSIS (SILICOSIS), The Story of Dusty Lungs—Lewis Gregory Cole and William Gregory Cole—*John B. Pierce Foundation*, 40 West 40th Street, New York, N. Y., 321 p., \$1. Orders must be handled direct. In spite of the popular subtitle, this is not a book for the lay reader but is addressed to medical scientists, especially those interested in this field.

Science News Letter, August 17, 1940

MEDICAL HISTORY

FAITHS THAT HEALED—Ralph H. Major—*Appleton-Century*, 290 p., illus., \$3. Faith healing at Lourdes, the case of Therese Neumann, magnetism, the healing touch and witchcraft at Salem are among the topics covered in this book. The author is a physician with the art of writing entertainingly. In this book he gives the facts about faith healing and miracles so far as known, the scientific explanation when there is one, and points out, in the cases that cannot be explained at present, that "just as scientific study has explained many mysteries of the past, so we may expect an explanation in the future of what seems a mystery today."

Science News Letter, August 17, 1940

DRAMA—MEDICINE

THE FLOWERING OF AN IDEA, A Play Presenting the Origin and Early Development of the Johns Hopkins Hospital—Alan M. Chesney—*Johns Hopkins Press*, 85 p., \$1.50. Written for the celebration of the fiftieth anniversary of the opening of the Johns Hopkins Hospital, the book should interest many besides those connected with this institution because of the influence this hospital, and the principles on which it was founded, has exerted on hospitals and medical teaching throughout the world.

Science News Letter, August 17, 1940

DENTISTRY

THE EFFICIENT DENTAL ASSISTANT—Ethel Covington—*Mosby*, 265 p., \$2.50. This is really a textbook for a new and developing vocation for women—dental assisting, the author calls it. The book is interesting, sympathetic and practical.

Science News Letter, August 17, 1940

SPORTS

AN ANATOMICAL ANALYSIS OF SPORTS—Gertrude Hawley—*Barnes*, 191 p., illus., \$3. Written to fill a gap the author believes exists between the anatomy and physiology taught physical education students and the sports techniques they study, this book both describes and analyzes the various movements in various sports.

Science News Letter, August 17, 1940

MEDICINE

QUARTERLY JOURNAL OF STUDIES ON ALCOHOL, Volume I, No. 1, June, 1940—*Journal of Studies on Alcohol, Inc.*, Four Hillhouse Avenue, New Haven, Conn., \$3 per year.

Science News Letter, August 17, 1940

MEDICINE

THE MALARIAL THERAPY OF GENERAL PARALYSIS AND OTHER CONDITIONS—William H. Kupper—*Edwards Brothers*, 155 lithoprinted p., \$2.25.

Science News Letter, August 17, 1940

AERONAUTICS

SECOND ANNUAL ROTATING WING AIRCRAFT MEETING, Sponsored by Philadelphia Chapter, Institute of Aeronautical Sciences, held at the Franklin Institute, Philadelphia, Pa., Nov. 30 and Dec. 1, 1939—*Institute of the Aeronautical Sciences, Philadelphia*, 206 mimeographed p., illus., \$2.50. For more than a year, an autogiro has been flying mail regularly from the roof of the Philadelphia post office to the Camden airport; while recently Igor Sikorsky flew the first successful American helicopter. These things, many of which are indicated in the papers contained in this report, forecast an important future for rotating wing aircraft.

Science News Letter, August 17, 1940

GEOLOGY

GEOLOGY OF THE PRESIDENTIAL RANGE—Richard P. Goldthwait—*Secretary, New Hampshire Academy of Science, Hanover, N. H.*, 43 p., 40c. (Bulletin No. 1). This treatise on the most outstanding of New Hampshire's geological and topographic features is well chosen to be the subject of the first in a new series of publications by the New Hampshire Academy of Sciences.

Science News Letter, August 17, 1940

ENGINEERING

HIGHWAY RESEARCH, 1920-1940—A. R. Rankin, ed.—*Highway Research Board, Div. of Engineering and Industrial Research, National Research Council, and Comm. on Research Activities, Amer. Assn. of State Highway Officials*, 133 p., \$1. A directory of projects recently completed or now in progress.

Science News Letter, August 17, 1940

BIOLOGY

LABORATORY MANUAL OF GENERAL BIOLOGY (4th ed.)—John G. Arnold and Timothy L. Duggan—*Mosby*, 275 p., \$1.50.

Science News Letter, August 17, 1940

BIOLOGY

HANDBOOK OF MICROSCOPIC CHARACTERISTICS OF TISSUES AND ORGANS—Karl A. Stiles—*Blakiston*, 148 p., \$1.50.

Science News Letter, August 17, 1940

MEDICINE

TEXTBOOK OF PYRETOTHERAPY—Willa Phillips—*Edwards Brothers*, 84 lithoprinted p., \$2.

Science News Letter, August 17, 1940

•First Glances at New Books

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ASTRONOMY—PHYSICS

THE BIRTH AND DEATH OF THE SUN—George Gamow—*Viking Press*, 238 p., illus., \$3. Recent years seem at last to have brought a satisfactory theory of the source of stellar energy, based on the conversion of hydrogen to helium. The development of this theory, and its bearing on other astronomical problems, such as stellar evolution and the expanding universe, is clearly and popularly presented by a distinguished physicist who has himself made important contributions in these fields.

Science News Letter, August 17, 1940

MATHEMATICS

MATHEMATICS AND THE IMAGINATION—Edward Kasner and James Newman—*Simon and Schuster*, 380 p., diagrams, \$2.75. There is much in mathematics that is interesting and entertaining, but to the layman it generally is hidden by the technicalities. In this book a distinguished mathematician and his former student succeed in communicating this to the 'general' reader. Anyone who enjoys puzzles and paradoxes will find it especially delightful.

Science News Letter, August 17, 1940

MATHEMATICS—PSYCHOLOGY

MATHEMATICO-DEDUCTIVE THEORY OF ROTE LEARNING, A Study in Scientific Methodology—Clark L. Hull and others—*Yale Univ. Press*, 329 p., \$3.50. A technical book but one of great importance.

Science News Letter, August 17, 1940

MATHEMATICS

STATISTICAL MECHANICS—Joseph Edward Mayer and Maria Goeppert Mayer—*Wiley*, 495 p., \$5.50. In problems such as those concerning motions of molecules in a gas, the individual elements are far too numerous to be considered separately but, with so many of them, statistical methods give an accurate picture of their behavior. This book is an introduction to these methods, intended, as the authors state, for "scientists whose familiarity with theoretical physics is limited."

Science News Letter, August 17, 1940

PALEONTOLOGY

PHYLOGENY OF NORTH AMERICAN EQUIDAE—R. A. Sturton—*Univ. of Calif. Press*, 32 p., illus., 50c. Of interest primarily to paleontologists and zoologists, this brief but comprehensive account of the rise of the horse family will be welcomed

for its assembling into one place all the essential facts and literature references on this important zoological group.

Science News Letter, August 17, 1940

SOCIOLOGY

YOUTH IN EUROPEAN LABOR CAMPS—Kenneth Holland—*Amer. Coun. on Education*, 303 p., \$2.50. This report to the American Youth Commission was prepared so that the experience of European countries might be made available in connection with work camps for American youth such as those of the CCC and National Youth Administration. It is even more pertinent now that new plans for universal training of youth are being considered. The illustrations are notable.

Science News Letter, August 17, 1940

SOCIOLOGY—ECONOMICS

FAMILY AND COMMUNITY IN IRELAND—Conrad M. Arensberg and Solon T. Kimball—*Harvard Univ. Press*, 322 p., illus., \$3.50. Here is a report of a field study by social anthropologists of Ireland in the days before Eire. The family is all-important there. Present events in that part of the world lend peculiar interest to this study of the Irish people in their relations to one another.

Science News Letter, August 17, 1940

NATURAL HISTORY

WHERE IS THE — COLLECTION?—Charles Davies Sherborn, comp.—*Cambridge (Macmillan)*, 147 p., 90c. An annotated checklist of collections of natural history objects all over the world, but principally in Britain, western Europe and North America. The author disclaims any attempt at exhaustiveness; but even so, the publication will be highly useful to museum men and other workers in the natural sciences. The listing is under name of collector.

Science News Letter, August 17, 1940

ZOOLOGY

TERRITORIAL BEHAVIOR AND POPULATIONS OF SOME SMALL MAMMALS IN SOUTHERN MICHIGAN—William Henry Burt—*Univ. of Mich. Press*, 58 p., illus., 50c.

Science News Letter, August 17, 1940

ZOOLOGY

THE RABBITS OF CALIFORNIA—Robert T. Orr—*Calif. Academy of Sciences*, 207 p., 10 pl., illus., \$3.50.

Science News Letter, August 17, 1940

PSYCHIATRY

MEN AGAINST MADNESS—Lowell S. Selling—*Greenberg*, 342 p., illus., \$3.50. The director of the Psychopathic Clinic of Detroit's Recorder's Court tells in readable fashion the thrilling tale of man's great battle against mental disease from the days when "maniacs" were chained like wild beasts, down to the present time, when an attempt is being made to prevent such illness by mental hygiene.

Science News Letter, August 17, 1940

PSYCHIATRY

SOCIAL AND BIOLOGICAL ASPECTS OF MENTAL DISEASE—Benjamin Malzberg—*State Hospitals Press*, 360 p., \$2.50. "If present trends continue," says the author, "mental disease will soon become our foremost health problem." The population of mental hospitals he finds to be increasing, incurring ever greater financial burdens upon the state.

Science News Letter, August 17, 1940

PSYCHOLOGY

SOCIAL PSYCHOLOGY—Charles Bird—*Appleton-Century*, 564 p., \$3.50. This textbook from the University of Minnesota is based on experimental findings and contains much material ordinarily found only in the journals. It will interest those concerned with pressing modern problems such as war and propaganda, behavior of crowds, leadership, old age and employment, crime and delinquency.

Science News Letter, August 17, 1940

PSYCHOLOGY

COMPARATIVE PSYCHOLOGY, Vol. II, Plants and Invertebrates—Carl J. Warden, Thomas N. Jenkins and Lucien H. Warner—*Ronald Press*—1070 p., \$6. This is the middle volume of an authoritative reference and text book on comparative and genetic psychology. The first and third volumes dealing with principles and methods and vertebrates have already appeared. The psychologist will want this book on his reference shelf; students and laymen will want to read it for the wealth of interesting facts it contains.

Science News Letter, August 17, 1940

PSYCHOLOGY—PHYSIOLOGY

SEXUAL PATHOLOGY, A Study of Derangements of the Sexual Instinct (Rev. ed.)—Magnus Hirschfeld; translated by Jerome Gibbs—*Emerson*, 368 p., \$2.95.

Science News Letter, August 17, 1940